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ASSUMING RESPONSIBILITY:

AN AFFECTIVE OBJECTIVE IN TEACHING TECHNICAL WRITING

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The need for effective technical writing has become more urgent than ever before. Health, safety, and economic well-being depend on effective technical writing by professionals in industry as well as government. An effective test report in an automotive company can result in serious accidents among the public at large; it can result in costly recalls that jeopardize the economic health of the company as well. Effective technical writing requires writers to master a series of cognitive skills, and these form the objectives for our technical writing courses in industry as well as in college. Management strongly supports these objectives, and relies on teachers of technical writing to achieve them with their students and employees.

I have learned from management, however, the need for an additional objective in technical writing courses, an affective objective: the willingness to assume responsibility for one's report. Ineffective technical writing also can result from a writer's inability or unwillingness to assume responsibility in a report.

A professional writing a technical report often must assume the responsibility for the consequences of the report. This is a two-step process. First, the professional must formulate the conclusions and recommendations implicit in his or her technical analysis. Second, the professional must ensure that these are acted upon as necessary. Although to do so requires cognitive skills, assuming responsibility for a report primarily requires the writer to be willing to do so. This is an affective objective that should be introduced into technical writing courses in college and in industry.

I first developed an awareness and appreciation of this need when working with the Manager of Truck Testing and Development at an automotive proving grounds. Even if we had enabled all of his engineers to express themselves clearly and concisely in the appropriate rhetorical structures and formats and with the necessary technical material, it would not, it turned out, have been sufficient. We also needed to enable them to assume responsibility for their reports.

To this manager, assuming responsibility meant that his engineers must have the willingness and ability to formulate conclusions and recommendations.

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That is, he wanted his engineers to report that:

> "The durability characteristics of the GN83 brake package are satisfactory" (a conclusion)

rather than that:

> "The GN83 brake package passed the DP488 durability test" (a result)

He furthermore wanted his engineers to report:

> "Release the GN83 brake package for the 14200 lb GVW QR 600 models" (a recommendation)

The abilities to formulate conclusions and recommendations are cognitive skills--and ones difficult to master--that we must teach professionals on the job. To teach these cognitive skills, however, we also must develop in professionals the willingness to assume responsibility: that is an affective objective. Many professionals are reluctant to expose themselves, and many assume that to do so it to be unobjective. Professionals, however, should be taught to make judgments when the communication situation calls for judgment. A test engineer who restricts herself to the statement, "the GN83 brake package passed the DP448 durability test," forces a supervisor or manager to interpret this result and formulate the organizationally relevant conclusion. Yet, the test engineer usually is in the best position to make those judgments. A result such as, "the brake package passed the durability test," does not necessarily imply that the package is "satisfactory" and should be "released." There have been situations where that has not been so, and recalls have been required.

The professional, in addition, must ensure that appropriate action is taken as well as be willing to make judgments. This is the second aspect of assuming responsibility, and is a matter of an appreciation of a need, again an affective objective.

The accident at Three Mile Island dramatically illustrates this need. Simply put, Three Mile Island was a technical communication failure. On September 24, 1977, an incident occured at the Davis-Besse nuclear plant that was strikingly similar to the incident at Three Mile Island. The operators mistakenly turned off the high pressure injection system and momentarily uncovered the core. Fortunately, however, Davis-Besse was operating at only 10% of power. On November 1, 1977, February 9, 1978, and February 16, 1978, three memos were sent within Babcock and Wilcox (the contractor who supplied the nuclear steam supply system for both Davis-Besse and Three Mile Island) that asserted that unless instructions were changed, the core of a nuclear plant could become uncovered and a meltdown become possible. This in fact is exactly what happened at Three Mile Island. During the hearings of the President's Commission on the Accident at Three Mile Island, Mr. Bert Dunn, Manager of the Emergency Core Cooling Systems Section at Babcock and Wilcox, who wrote the February 9 and 16, 1978, memos, said:

> "Had my instructions been followed at TMI II, we would not have had core damage; we would have had a minor incident."

Mr. Dunn recommended certain actions, but did not appreciate the need for follow-through to ensure that action was taken.

On August 3, 1978, Mr. Donald Hallman, Manager of the Plant Performance

Services Section of Babcock and Wilcox, wrote a memo to Mr. Bruce Karrasch, Manager of the Plant Integration Section at Babcock and Wilcox, to inform him of Mr. Dunn's recommendations and that, because the Nuclear Service Section had raised some questions, the recommendations had not been acted upon--although Mr. Dunn's memos "suggest the possibility of uncovering the core if present HPI [high pressure injection] policy is continued." Mr. Karrasch in fact had been on the distribution list for Mr. Dunn's memos, but testified about each that "my memory does not recall my reading the memorandum or taking action on it." Mr. Karrasch, however, did remember receiving Mr. Hallman's memo, but did "not recall reading it very carefully at the time" and "thinking that they were rather routine questions." He "placed a note on top of the memorandum to one of two people who report to me in Plant Integration, with a message to him to please follow up on this and take any action that you seem [sic] appropriate." Those persons were Eric Swanson and Arthur McBride. Again:

> MR. KANE: Do Mr. Swanson or Mr. McBride recall ever receiving this memorandum of August 3, 1978, from you?
> MR. KARRASCH: No, sir, they do not.

The August 3, 1978, memo from Mr. Hallman to Mr. Karrasch, in which Mr. Hallman stated that action had not yet been taken on Mr. Dunn's recommendation, also has Mr. Dunn on the distribution list. Mr. Dunn, however, testified he didn't receive it:

> COMMISSIONER LEWIS: Mr. Dunn, I'd just like to get something clear. When did you first become aware of the Hallman memorandum? Was that after Three Mile Island or earlier, the August memorandum?
> MR. DUNN: That was after Three Mile Island.

On March 28, 1979, the operators at Three Mile Island failed to activate the High Pressure Injection system in time; the core became uncovered and a partial meltdown occured. On April 4 and April 17, 1979, Babcock and Wilcox issued new instructions to the operators of its nuclear reactors. These instructions were those recommended by Mr. Bert Dunn in his memos of February 9, 1978, and February 16, 1978. As Mr. Dunn himself testified, "Had my instructions been followed at TMI II, we would not have had core damage; we would have had a minor incident."

Three Mile Island, then, was--perhaps primarily--a communication failure. As the testimony suggests, this certainly was inadvertent. An examination of the testimony and of the memoranda suggests that the communication failure to a significant extent resulted because these professionals were unaware of the need to ensure that appropriate action is taken. Throughout this year-and-a-half period they assumed that action was being taken, but none bothered to see that it was. Essentially, these professionals did not appreciate the need for them to assume that responsibility. The testimony makes clear that, had they appreciated that need, they not only would have been willing to do so, they would have done so.

These examples therefore illustrate how teachers of technical writing must establish affective objectives as well as skills objectives. They must

teach their students to be aware of and to be willing to assume the responsibility for their reports. Achieving this affective objective, in practice and especially on the job, is a precondition for achieving the skills objectives we traditionally have emphasized in our technical writing courses.

References

The automotive proving grounds reports are proprietary, so I have changed the test situation components and documentation information. Except for those changes in specific information, the quotations are literal.

The Three Mile Island references are, in order of presentation, Transcript of Proceedings, President's Commission on the Accident at Three Mile Island, Public Hearings: July 18, 1979, p. 144; July 18, 1979, Exhibit No. 5 (the other memos referred to are Exhibit No. 1, No. 3, No. 4, No. 9, and No. 10); July 19, 1979, p. 239; July 19, 1979, pp. 240-241; July 19, 1979, p. 241; July 18, 1979, p. 117; July 18, 1979, Exhibits No. 9 and No. 10.